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AUTHOR McLean, James T.
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ABSTRACT

Concerned with improving text readability in the content areas, this report first draws upon Linda Flower's writing steps and strategies in its description of writing as moving from planning to generating ideas in words, designing for a reader, and editing for effectiveness. It also presents nine more precise steps in the writing process along with strategies designed to complete these steps successfully. The steps it lists are (1) exploring the rhetorical problem, (2) making a plan, (3) using creative thinking, (4) organizing ideas, (5) Knowing the reader's needs, (6) creating reader-based prose, (7) reviewing the paper and its purpose, (8) testing and editing the writing, and (9) editing for connections and coherence. To explore factors contributing to text readability, the report then discusses questions from J. W. Irwin's and C. A. Davis's checklist on what can safely be assumed about students' vocabulary skills, prior knowledge, and general experiential background; on the introduction of new concepts and main ideas in texts; and on appropriate levels of sentence complexity. After briefly mentioning both relational mapping--another strategy to improve text comprehensibility--and the influence of student motivation on readability evaluations, the report concludes with a series of diagrams illustrating levels of readability. (MM)

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WRITING FOR LEARNING

Practical Application of Research Findings

JAMES I.McLEAN

Directorate of Training Development

Academy of Health Sciences, US Army

Fort Sam Houston, Texas 78234

1984 Annual Conference of the AECT

Dallas, TX

"The views of the author are his own and do not purport to reflect the position of the Department of the Army or the Department of Defense."

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CS208 225

Writing for Learning: Practical Application of Research Findings

James I. McLean

The Rhetorical Framework

Writing is a reiterative, circular process. However, once we go through this reiterative, circular process, we end up with language — a product — which is linear. The product has a beginning, a middle, and an end. Also, my presentation has a beginning, a middle, and an end. I will be describing writing in terms of Linda Flower's steps and strategies (Flower, 1981). There will be precisely 9 steps. These steps will include over twice as many strategies. Each step will include an average of over two strategies.

To sketch out this plan and to reveal it to you, I will use the structure provided by Linda Flower (1981, p. 49).

PLANNING

Step 1: Explore the Rhetorical Problem,

Step 2: Make a Plan.

GENERATING IDEAS IN WORDS

Step 3: Use Creative Thinking,

Step 4: Organize Your Ideas.

DESIGNING FOR A READER

Step 5: Know the Needs of Your Reader,

Step 6: Transform Writer-Based Prose into Reader-Based Prose.

EDITING FOR EFFECTIVENESS

Step 7: Review Your Paper and Your Purpose,

Step 8: Test and Edit Your Writing,

Step 9: Edit for Connections and Coherence.

The Psychological Framework

Writing. In their model of the cognitive processes of writing, Hayes and Flower (1980) identify three major processes of writing: PLANNING, TRANSLATING, and REVIEWING.

The PLANNING process consists of three functions: GENERATING, ORGANIZING, and GOAL SETTING. The GENERATING function retrieves information from long term memory which may be useful as a topic to be organized with respect to other topics or a criterion by which to judge text. The ORGANIZING function includes several elementary operations for identifying the appropriate sequence and hierarchical relationships of topics for inclusion in a writing plan. The GOAL SETTING function identifies and stores criteria for later use in editing.

Under the guidance of the writing plan, the function of TRANSLATING is to take material from memory and translate it into appropriate written English sentences.

The REVIEWING process consists of reading and editing.

Reading. As with writing, reading is not a simple linear process. When people read, they create a mental model of the meaning of the text. In creating this mental model, they rely upon their prior knowledge of both the text and the world to make inferences. This bridges the gaps left in the meaning of the text (Sanford and Garrod, 1981). If we rely on interpretation of eye-movement data (Rothkopf, 1982), readers spend more time reading portions of a text which are relevant to the tasks or goals that they are trying

to accomplish. Also, memory for a text is a constructive process in which readers tend to resolve inconsistencies between the text and their other knowledge (Spiro, 1980).

The Nine Steps

STEP 1: EXPLORE THE RHETORICAL PROBLEM

Strategy: Define your purpose, reader, and projected self.

Early in preparing this presentation, I decided that my purpose was to give you information which would be helpful to you in your own writing efforts. As a result of this presentation, you should be able to write better. Your writing should be easier for your students to read.

To accomplish these goals, I needed to consider your needs and characteristics. Although I did not know specifically who would be attending today, I had some ideas about who you would be. Obviously, most of you have some interest in instructional development. You have some concerns about writing for learning; otherwise, you would not have attended this presentation. I assume that a reasonable portion of you are full-time developers of written instruction. Some of your time may be spent in coordinating group instruction which involves written instruction as a component. At times, all of you use writing to make something happen.

I considered not only who you would be, but also who would I be. What is my persona, or projected self? What version of myself is writing this paper or making this presentation? Since I want you to have some confidence in what I have to say, I want you to know that I have nearly 15 years of experience in preparing instructional materials for adults. I have also trained persons to be writers of instruction. Also, I have reasonable access

to current trends in research. I am a doctoral candidate at the University of Texas at Austin.

STEP 2: MAKE A PLAN

Strategy 1: Make your goals operational,

Strategy 2: Sketch out a plan,

Strategy 3: Reveal your plan to the reader.

In exploring the rhetorical problem, I said that my goals were for you to be better able to write. Your writing should be easier for your students to read. How do we make these goals operational?

Let's compare writing to other complex skills such as playing chess. In complex games such as chess and tennis, there are practically an infinite number of possible moves. There is no one rule or set of rules to follow to win these games. However, there are guidelines or strategies which are more powerful than others. In problem-solving, in general, we call these strategies heuristics (Flower, 1981).

Some weak heuristics for writers are:

—Trial-and-error approaches.

—Production of a perfect draft on the first attempt.

—Waiting for inspiration.

Some powerful strategies for writers are:

—"Brainstorming," that is, just jotting down any ideas that come to your head.

—Talking to yourself. Start off by saying "What I really mean is. . ."

—Write an imperfect first draft, which you can revise later.

Thus, you will be better able to write if you become acquainted with powerful strategies or heuristics. Later, we will help you to make your writing more readable when we discuss editing. At that time, we will describe a device which can be used to assess the relative readability of passages.

STEP 3: USE CREATIVE THINKING

Strategy 1: Turn off the editor and brainstorm,

Strategy 2: Talk to your reader,

Strategy 3: Systematically explore your topic,

Strategy 4: Rest and incubate.

STEP 4: ORGANIZE YOUR IDEAS

Strategy 1: Develop your own code words,

Strategy 2: Nutshell your ideas and teach them,

Strategy 3: Build an issue tree.

The first four steps — exploring the rhetorical problem, making a plan, using creative thinking, and organizing your ideas — can all be considered aspects of the PLANNING process. According to Linda Flower (1981), creative thinking and organizing your ideas are two sides of a coin. Creative thinking is play. You generate and play with your ideas without having to clean them up. Afterwards, you need to organize your ideas into a meaningful whole. Both generation and organization occur with your purposes in mind. Thus, we have a creative trio of goal-setting, creative thinking, and organizing. Linda Flower (1981, p. 72) calls this the "three step formula: plan, play, push."

In brainstorming, you turn off your editor and write without proofreading. However, you do keep the problem in mind.

In talking to your reader, you pretend a reader is in front of you. However, don't make it too easy. Limit the time you have, or assume a hostile group of students.

In systematically exploring your topic, you organize your ideas according to traditional rhetorical structures, such as definition, comparison and contrast, cause and effect, or support from evidence. Second, consider your topic as a particle (thing in itself), a wave (a thing changing over time), and as part of a field (a thing in its context). Third, generate analogies from the following categories: personal analogy (you are it), direct analogy (compare it to something concrete), symbolic analogy (compare it to an abstract principle), and fantasy analogy (Reading is "like walking right inside the writer's head and getting him or her to answer your questions. . .")

The key in rest and incubation is to remember to think of the next unsolved problem in your project before resting. Somehow, when you return to your work, the previously unsolved problem will be easier to solve. Many of us use this strategy naturally rather than as a conscious device.

In developing your own code words, it is important to elaborate upon your own jargons. Thus, both reading and writing are code words for me which involve cognitive processes, my work at the office, and events of everyday life outside the office. It is improbable that these words would have all of the same connections for people in this room. Therefore, if I use one of my personal code words, I must be careful to evoke those ideas which are important to understanding my meaning.

In nutshelling your ideas and teaching them, try to express your thoughts in just two or three sentences and then try to get someone else (real or imaginary) to understand them.

To build an issue tree, you merely draw a tree-like diagram to represent the relationships among your ideas.

STEP 5: KNOW THE NEEDS OF YOUR READER

Strategy 1: Analyze your audience,

Strategy 2: Anticipate your reader's response.

STEP 6: TRANSFORM WRITER-BASED PROSE INTO READER-BASED PROSE

Strategy 1: Set up a shared goal,

Strategy 2: Develop a reader-based structure,

Strategy 3: Give your reader cues,

Strategy 4: Develop a persuasive argument.

To analyze your audience, you must consider how the readers' knowledge, attitude, and needs may differ from your own. In adult education, we often speak of needs assessment. Adult learners have definite, practical needs. You may have attended this presentation with specific needs in mind, such as to better write papers for your students or your fellow educators. If we were speaking to a group of behaviorists, we might have to appeal for special tolerance for our viewpoints. Then we would be considering attitudes as well as needs. Actually, gaps between knowledge are probably easier to accommodate than gaps in attitudes or needs.

Next, we must anticipate our reader's response. While readers actively construct the meaning of a text, they depend heavily upon expectations and structure. Therefore, if you want to influence their understanding (if you want them to get your message), you must provide a clear context or framework for their reading. You must tell them what to expect. Information in the text must belong to a clear hierarchy.

We also want to set up a shared goal. In the description of this presentation, we established the need of all adult educators to know about writing for learning. We also indicated that there would be some practical objectives to be met, such as the ability to write more readable prose.

An example of developing a reader-based structure is to organize a presentation under questions that might be of interest. Examples of headings for this presentation might have been:

Why writing for learning?,
How does one begin?,
What comes next?,
How do you know if you have succeeded?

An important tool for writers is to give your reader cues. When a reader picks up a text or other written instruction, he has expectations about the text. For example, he expects the most important points to be included at the beginning and summarized again at the end. He expects that the first sentence of a paragraph will be its topic sentence. Examples of cues for readers are:

Cues that Preview: Title, Table of Contents, Introduction, Headings

Cues that Review: Summaries (sentences at end of paragraphs and concluding paragraphs)

Visual Cues: Pictures, Graphs, Typefaces, White Space

Verbal Cues: Transitional Words, Pronouns, Conjunctions

STEP 7: REVIEW YOUR PAPER AND YOUR PURPOSE

Strategy 1: Match your paper against your goals and plans,

Strategy 2: Simulate a reader's response.

STEP 8: TEST AND EDIT YOUR WRITING

Strategy 1: Edit for economy,

Strategy 2: Edit for a forceful style.

Research (Sommers, 1980) has shown that experienced writers used revision to see their writing again and to improve it. By comparison, inexperienced writers use their revision efforts only to proofread. Therefore, our two strategies here emphasize the meaning of what we write. You match the paper against your goals and plans. If the paper doesn't achieve your purpose, you need to try again.

Also, get a friend to read the paper. Ask him to summarize or outline what you have written. The content of his summary or outline will give you a good idea about how well you are communicating. If no friend is available to read your paper, pretend that you are a reader unfamiliar with the paper.

Editing can come at any point in the composing process. Be sure you edit for economy; that is, you should avoid jargon and come to the point. Use concrete language. Try to achieve a forceful style by using simple, active sentences.

STEP 9: EDIT FOR CONNECTIONS AND COHERENCE

Strategy 1: Transform listlike sentences,

Strategy 2: Reveal the inner logic of your paragraphs.

The key concern here is to make the overall organization and intent of your writing clear to the reader. For example, we may need to add words such as "although" and "because" and short explanations to make interrelationships clear.

An example of a listlike sentence provided by Flower (1981, p. 185) is:

> The thing about a sentence with a listlike form is that there are a number of tiny points with independent bits of meaning that

are set out in the sentence in a line so that
the series of words and phrases read like so
many pieces of popcorn strung out on a string.

The problem with such sentences is that each word, phrase, or idea becomes equal to all other words, phrases, and ideas. The reader is unable to identify their relative importance.

How do we know if the inner logic of our paragraphs is clear? If it follows a traditional rhetorical structure such as problem-solution, cause-and-effect, or chronological order, we can feel assured that readers will quickly recognize the structure. There are also methods of diagramming or outlining the content to ensure clarity of organization.

Formative Evaluation

Professional developers of instruction spend much time and effort in improving the understandability and readability of expository prose. Little is known about how successful they are, what criteria guide their work, which of these criteria correlate well with success in improving expository prose, and which criteria can be best used by reviewers to assess the readability of such prose.

My interest in this topic began, in part, when I observed the abuse of readability formulas. These formulas were used as guidelines for the revision of texts. Although the developers of these formulas tended to emphasize their limitations as guides for writers, there are powerful pressures to abandon these precautions.

A number of recent studies have demonstrated the insignificant or unimportant gains in comprehension when formulas were used as guides for improving the readability of written material. Readability formulas have

failed as guides for rewriting texts because they are correlative rather than causative. Undoubtedly, texts including unfamiliar vocabulary (perhaps measured by word length) and complex syntax (perhaps measured by sentence length) do tend to be more difficult to read than texts with familiar vocabulary and simple syntax. However, if efforts are made to hold content constant (this provision also necessitating the maintenance of technical terms in some texts) and if the text is simplified by breaking up long sentences into shorter sentences or replacing some unfamiliar words with familiar words (or a combination of these strategies), the gains in comprehensibility (readability) tend to be nonexistent or unimpressive (Duffy and Kabance, 1982; Walmsley, Scott, and Lehrer, 1981; Johnson and Otto, 1982).

There are established procedures for administering instructional materials to representative subjects to determine if the subjects achieve the instructional objectives as a result of the instruction (Dick and Carey, 1978). Such procedures rely upon the comments of the subjects and responses to examination items to diagnose areas where the instruction needs improvement. To some extent then, these procedures rely upon the subjects to diagnose problems with instruction and to suggest remedies. To the extent that the subjects are good instructional developers, such comments are useful. However, advances in the study of written instruction have reached the point that prior or additional improvements may be made as a result of a diagnostic process carried out by writers and reviewers. In any case, writers do expend much effort in improving the comprehensibility of prose and reviewers do make decisions about the worth of such efforts and the need for rewriting. However, these decisions of writers and reviewers are usually made on the basis of intuition, experience, and training; the validity of these decisions is rarely if ever judged by a set of criteria which have been properly tested.

Factors Contributing to the Comprehensibility of Text

In the following paragraphs, I have taken items from a checklist prepared by Irwin and Davis (1980, pp. 129-130) and discussed each as appropriate:

1. "Are the assumptions about students' vocabulary knowledge appropriate?

Johnston and Pearson (1982) demonstrated substantial effects upon the comprehension of eighth-grade subjects when proper nouns were changed so that the Battle of Antietam Creek during the Civil War appeared to be a battle in a primitive area of a foreign country. They identified this effect upon comprehension as being due to the factor of "familiarity."

However, a technical vocabulary, such as in a medical text, may produce reactions in readers similar to that of a name-based change of setting. However, since the developer of medical instruction typically hopes that students will learn at least key terms and since it is often difficult to be accurate without using technical terms, a typical strategy of writers would be to explain technical terms when each first appears and perhaps also provide a glossary with the text.

For particular populations, it is possible to gather data which indicate which terms are already known by, for example, 80% of the students; the list of terms can be used in readability formulas similar to the Dale-Chall (Klare, 1974-1975). However, the usefulness of such lists in the development of instructional materials has not been established.

2. "Are the assumptions about students' prior knowledge of this content area appropriate?"

It is possible in some systems of instruction to provide pretests which test a student's readiness for the content of a lesson. In the event that a student does not have some prerequisite knowledge, remedial instruction can be provided. For experimental use, Johnston and Pearson (1982) discuss a type of multiple-choice exercise which can be used in a posttest to assess the prior knowledge of the student in the specific content area. They found that prior knowledge measured by such items was able to account for 23.8% of the residual variance after the effects of reading ability had been statistically removed.

3. "Are the assumptions about students' general experiential backgrounds appropriate?" "Are new concepts explicitly linked to the students' prior knowledge or to their experiential backgrounds?"

In the development of instruction, these questions might arise as issues in the selection of metaphors. For example, if I write that a paper clip weighs approximately one gram in order to give students a "feel" for the concept of a gram, will all students be familiar with paper clips of the same general size? A writer usually relies upon his own practical world knowledge to infer the "common denominators" in the practical world knowledge of his readers.

4. "Does the text introduce abstract concepts by accompanying them with many concrete examples?" "Does the text introduce new concepts one at a time with a sufficient number of examples for each one?" "Are definitions understandable at a lower level of abstraction than the concept being defined?" "Does the text provide adequate iconic aids such as maps, graphs, illustrations, etc., to reinforce concepts?"

Holmes and Langford (1976) found that concrete sentences were better recalled than abstract sentences — at least when subjects were presented lists of such sentences.

As cited in Bransford (1979), Pollchik found especially powerful effects when specific examples were used to illustrate seven psychological defense mechanisms. Students who received short examples answered 16.43 or 20 questions correctly. The questions involved categorizing novel examples as being one of the seven psychological defense mechanisms: denial, displacement, intellectualization, projection, reaction formation, regression, or sublimation (or "none of the above").

According to Schallert (1980, p. 514):

> Pictures help the reader learn and comprehend a text when they illustrate information central to the text, when they represent new content that is important to the overall message, and when they depict structural relationships mentioned in the text. In addition, pictures seem to have a specific effect that is localized mainly to illustrated information and that amounts to more than a simple second rehearsal of the text.

5. "Is the level of sentence complexity appropriate for the students?"

After vocabulary, sentence complexity is often the only other variable considered in readability formulas. This variable is usually estimated by a measure of sentence length. However, when materials are "simplified" by breaking up longer sentences or by deleting connective words, the actual result may be to make it more difficult for students to understand the relationships between the shortened sentences. It may be more effective to retain a "but" or a "because" joining two clauses than to divide them into two unconnected sentences. However, a study by Johnston and Pearson (1982) failed to reveal significant positive or negative effects when such connectives were

deleted. In addition to other problems of syntax, sentences may be difficult to read due to the use of the passive rather than active voice.

6. "Are the main ideas of paragraphs, chapters, and subsections clearly stated?" "Does the text avoid irrelevant details?" Is an introduction provided for in each chapter?" "Is there a clear and simple organizational pattern relating the chapters to each other?" "Does each chapter have a clear, explicit, and simple organizational structure?" "Does the text include resources such as an index, glossary, and table of contents?" "Do questions and activities draw attention to the organizational pattern of the material (e.g., chronological, cause and effect, spatial, topical, etc.)?" "Are chapter titles and subheadings concrete, meaningful, or interesting?"

These factors are related to the organization of the text, with particular attention to the accessibility and focus upon the main ideas of the text. Meyer (1975) has studied the importance of signaling, devices which are not informative in themselves but which point out the structure of the text to the student. However, Ballstaedt, Schnotz, and Mandl (1981, p. 26) have pointed out the "problem of differentiating between content and 'signaling.'"

Schallert, Ulerick, and Tierney (in press) have devised a method called relational mapping to describe "what a reader is expected to learn from a text." The types of relationships considered in this system are characteristics (definition and property), set membership (example), comparison (similar, not similar, greater than, and less than), and process (temporal and causal). After preparation of the map, the propositions (idea units) within the text are listed and assessed for level of embeddedness. The explicitness of relationships is rated. I believe that such a mapping procedure could be used to assess the organizational pattern of a text for clarity,

simplicity, and "logic." Probably such a procedure would always be somewhat intuitive. When used by a writer or editor, the process of mapping a portion of a text would provide insights into the existing as well as alternative ways to organize the text. Once the writer or editor becomes aware of structurally imaged alternatives, the writer or editor might select the intuitively better organization.

In addition to the checklist items mentioned so far in this presentation, Irwin and Davis (1980) list several items which are concerned with the types of activities and cognitive processes that are elicited by a text. Most of these items relate to the nature of questions or exercises included in a text. Do they facilitate self-review, the drawing of inferences, and creative thinking? In addition, Irwin and Davis perhaps should have mentioned the possible use of imagery instructions for the processing of the text and other instructions which encourage deep rather than shallow processing.

The last group of items listed by Irwin and Davis (1980) are related to motivation. These items assess the esthetics, relevance, and "meaningfulness" of different aspects of a text. According to Klare (1976), reader motivation can override other factors related to comprehensibility. Thus, in a typical experimental situation, the subjects may be such well motivated readers that such factors as work unfamiliarity and sentence complexity become less serious obstacles.

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COPY 1

224

1. LANGUAGE.
FACTOR 1A: HOW FAMILIAR IS THE VOCABULARY?

(NOTE: Judge the general level of the vocabulary of the passage. How common or familiar are the words used? Judge the words of the passage in comparison to the words in the blocks.)

Top, turned, 3, learn, point, city, play, toward, five, using, himself, usually, money, seen, didn't.

Objects, fit, students, turns, clouds, equal, war, value, yard, Americans, beat, inch, walking, sugar, key.

Claim, Mediterranean, purposes, ladies, magazine, platform, hunted, decision, apparently, electrical, picnic, religion, marry, printing, pop.

Fists, plurals, outlined, challenged, punished, 53, courageous, medicines, Papa's, Chuck, weakened, loops, dressing, exploded, uniforms.

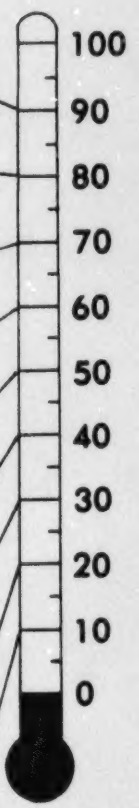
Goodbye, propaganda, parliamentary, corps, Dawn, pregnant, corrosion, feminine, deviations, usable, jig, Manchuria, pasting, sportsmanship, consciously.

Scratch, eaglets, godmother, huntsman, jinxed, knothole, lop-eared, manhole, steer's, buffet, goatskins, seesaws, sheepherders, hacksaw.

Rancid, coarseness, resistor, Rockwell, tempering, ohms, tolerances, cross-section, ginning, worsteds, samplers, slotted, casualty.

Abscessed, absorbable, absorptions, accessory, addicting, accumulations, action-reaction, adeptly, adjoin, alcoholism, afflictions, afterimages.

Annealed, carburizing, chamfered, collotype, coremaker, crimping, crosscutting, cutting-plane, dado-head, fusibility, inductance, micromicrofarad, oxyacetylene, peening.



1. LANGUAGE.
FACTOR 1B: ARE SENTENCES SIMPLE OR COMPLEX?

The sentence structure is very complex. Sentences with more than two dependent clauses are common. Sentences are frequently longer than two typed lines. Most sentences are in the passive voice. Negatives may be used. Example: "However, annual leave accumalated prior to the SES appointment is subject to the maximum limitation, forfeiture, and consideration for restoration."

Sentences are generally equivalent to one or two typed lines each. The sentence structure tends to be complex. Most sentences have at least one dependent clause. Many sentences are in the passive voice. Negatives may be used. Example: "New critical elements and performance standards need to be established if job requirements change."

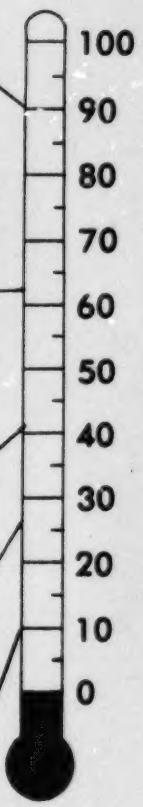
Sentences tend to be longer than one typed line. Sentences generally have two clauses, but they are still understandable. Negatives may be used. Example: "You determine when overtime is necessary and when it will be performed."

Sentences are generally short, but they are often in the passive voice. Negatives may also be used. Example: "A message was left with the answering service."

Nearly all sentences are:

-----Short, with only one action or idea per sentence.
-----Affirmative instead of negative.
-----Active instead of passive.

Example: "Ann Cotham hammered the nail."



2. ALTERNATIVES TO ABSTRACT LANGUAGE

FACTOR 2A: ARE EXAMPLES, METAPHORS, AND ANALOGIES USED WELL?

Sentences are abstract. The text uses no examples, metaphors, or analogies. Example: "Certain morphological and histochemical characteristics are utilized to differentiate blood cells. A review of the significant features promotes a better understanding of blood differentials."

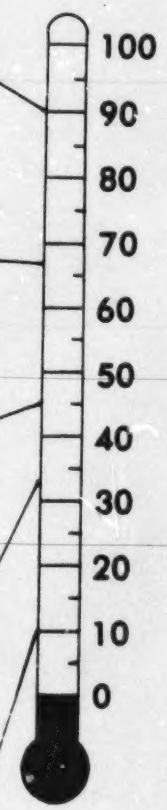
Examples, are used but the concepts are still somewhat abstract. Example: "Cellular characteristics such as relative size, shape, cytoplasmic granulation, nuclear-cytoplasmic ration, nuclear configuration, chromatin or nucleoli are very important."

The text uses examples which tend to be too formal. Example: "John Doe is the plantiff in a case from the Privacy Act of 1974."

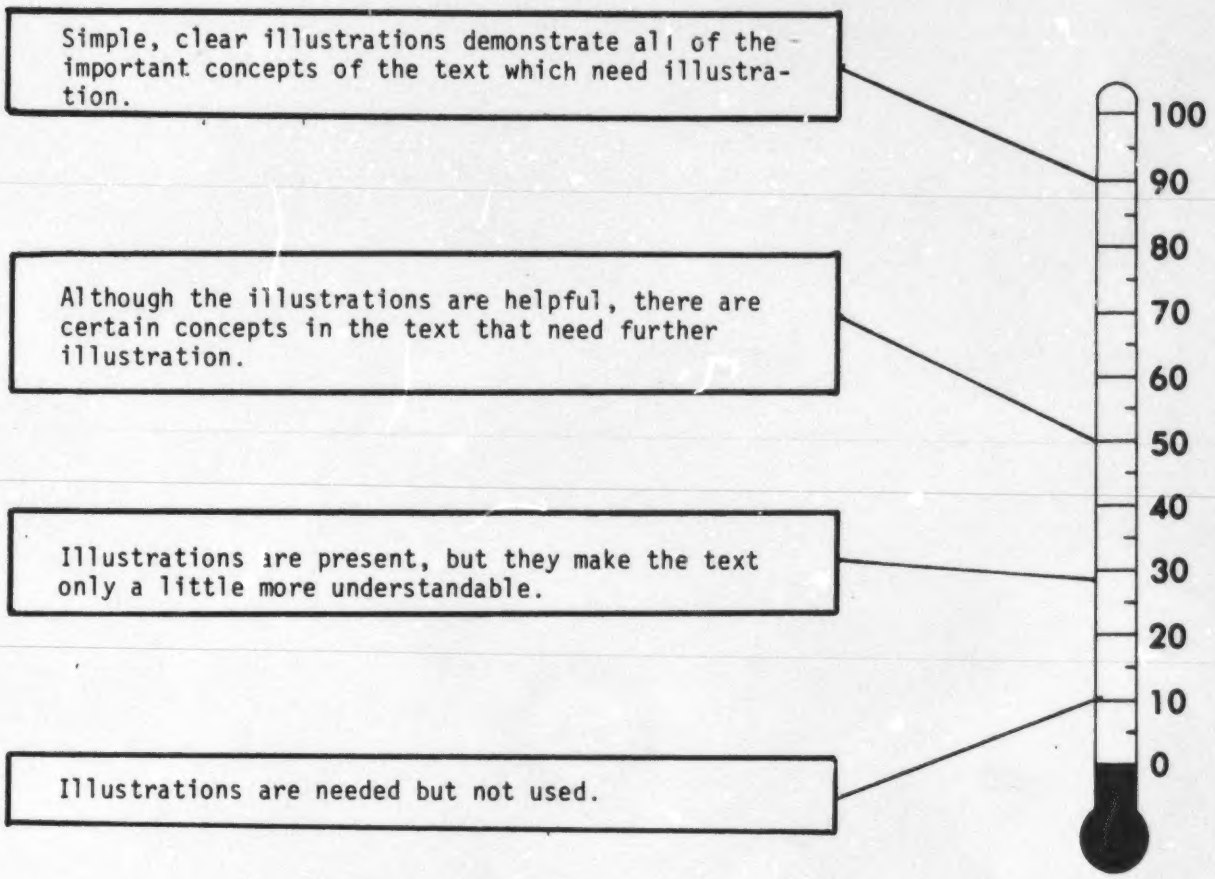
Analogies, examples, or metaphors are used in a complex way. For example, note this use of analogy:

> Imagine a bathtub filled with irregular piles of sand. Now let water into the tub slowly. Notice how the water level rises—filling in the depressions, moving up the "valleys." Turn off the water. If you were to "draw" a continuous line at the water level, you would have a <u>contour line</u> that could be shown graphically on a <u>contour map</u>. Now, if you were to let in another inch of water, and "draw" another line, you would have a second contour on the map. Your <u>contour interval</u> would be 1 inch. Contour maps as you can see, are meant to show you the form and shape of the earth's surface.

The text makes very successful use of examples, metaphors, or analogies. Because of this, the text is as easy to read as a popular short story.



2. ALTERNATIVES TO ABSTRACT LANGUAGE.
FACTOR 2B: IS GOOD USE MADE OF ILLUSTRATIONS?


Simple, clear illustrations demonstrate all of the important concepts of the text which need illustration.
Although the illustrations are helpful, there are certain concepts in the text that need further illustration.
Illustrations are present, but they make the text only a little more understandable.
Illustrations are needed but not used.
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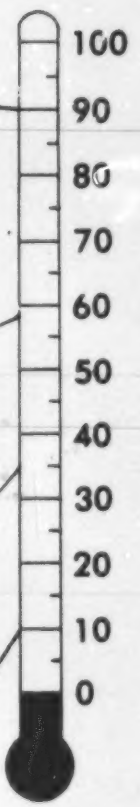
3. WRITING AS CONVERSATION.
FACTOR 3A: HOW WELL IS MATERIAL RELATED TO THE READER'S KNOWLEDGE?

New concepts and terms are always clearly related to simple concepts and terms that most students will already know. A pretest or other introductory material is used to stimulate learner recall of prerequisite knowledge. The context is adequately described. Analogies, metaphor , and examples are used as needed to tap the reader's prior knowledge.

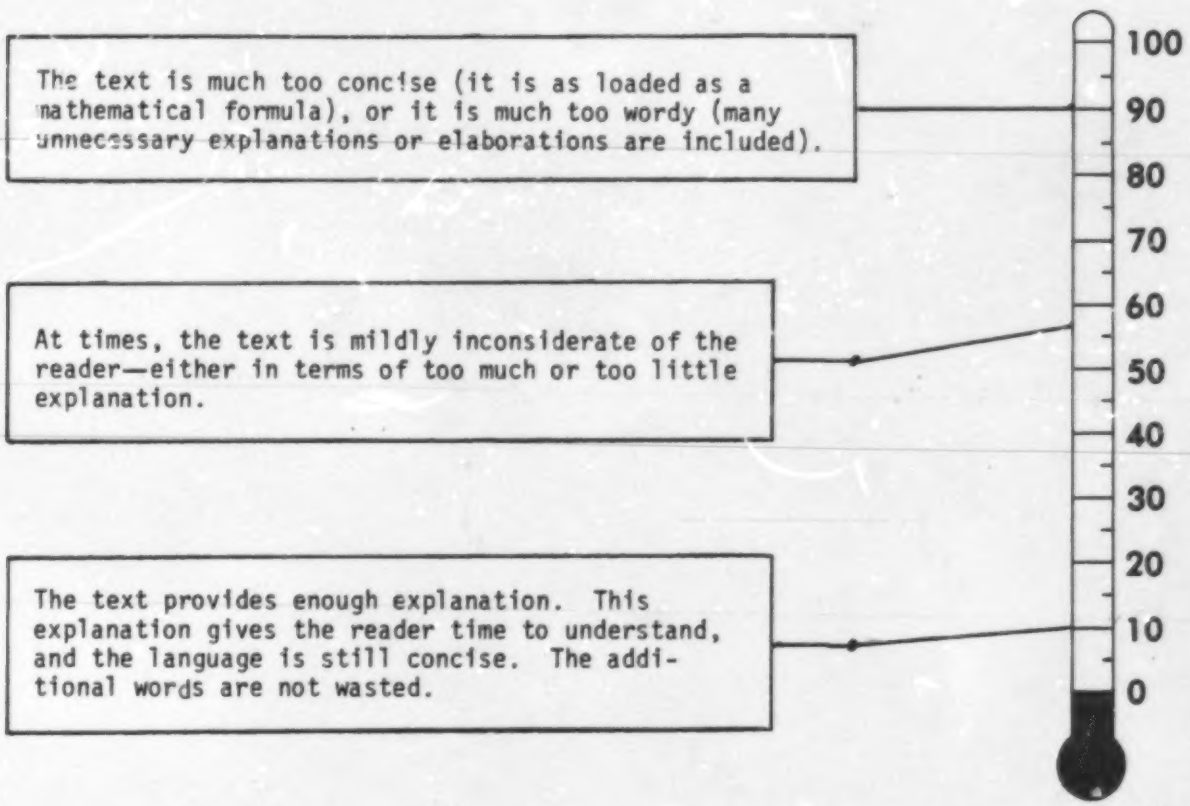
Sometimes analogies, metaphors, or examples are used so that the student will be able to understand new concepts by referring to things they already know. However, no special introduction or pretest is provided to stimulate recall.

There is no use of analogies, metaphors, or examples to take advantage of the reader's prior knowledge. However, the language is sufficiently concrete for most readers to understand.

Concepts and terms are abstract. They do not seem to be related to things that most students already know.



3. WRITING AS CONVERSATION.
FACTOR 3B: HOW MUCH EXPLANATION IS PROVIDED?


The text is much too concise (it is as loaded as a mathematical formula), or it is much too wordy (many unnecessary explanations or elaborations are included).
At times, the text is mildly inconsiderate of the reader—either in terms of too much or too little explanation.
The text provides enough explanation. This explanation gives the reader time to understand, and the language is still concise. The additional words are not wasted.
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. WRITING AS CONVERSATION.
FACTOR 3C: HOW MUCH VARIETY IS THERE?

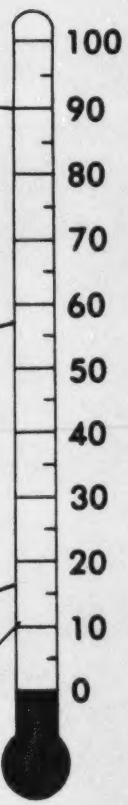
The text has a natural spontaneous style. It is written the way a person should talk. There is a variety in:

---Sentence length and structure.
---Vocabulary. (A diversity of words is used.)

Generally, the text is well written. However, it tends to be a bit too formal and dry. This may be due to excessive use of the same words again and again.

The material is written with a dull style. Everything is very uniform. The writing style may be "choppy." The vocabulary is boring.

A reader might never guess that a human being wrote this text. Even with great effort, one's attention wanders.



4. WRITING AS INSTRUCTION.
FACTOR 4A: ARE OBJECTIVES OR PURPOSES INDICATED?

No purposes, objectives, or pre-questions are provided.

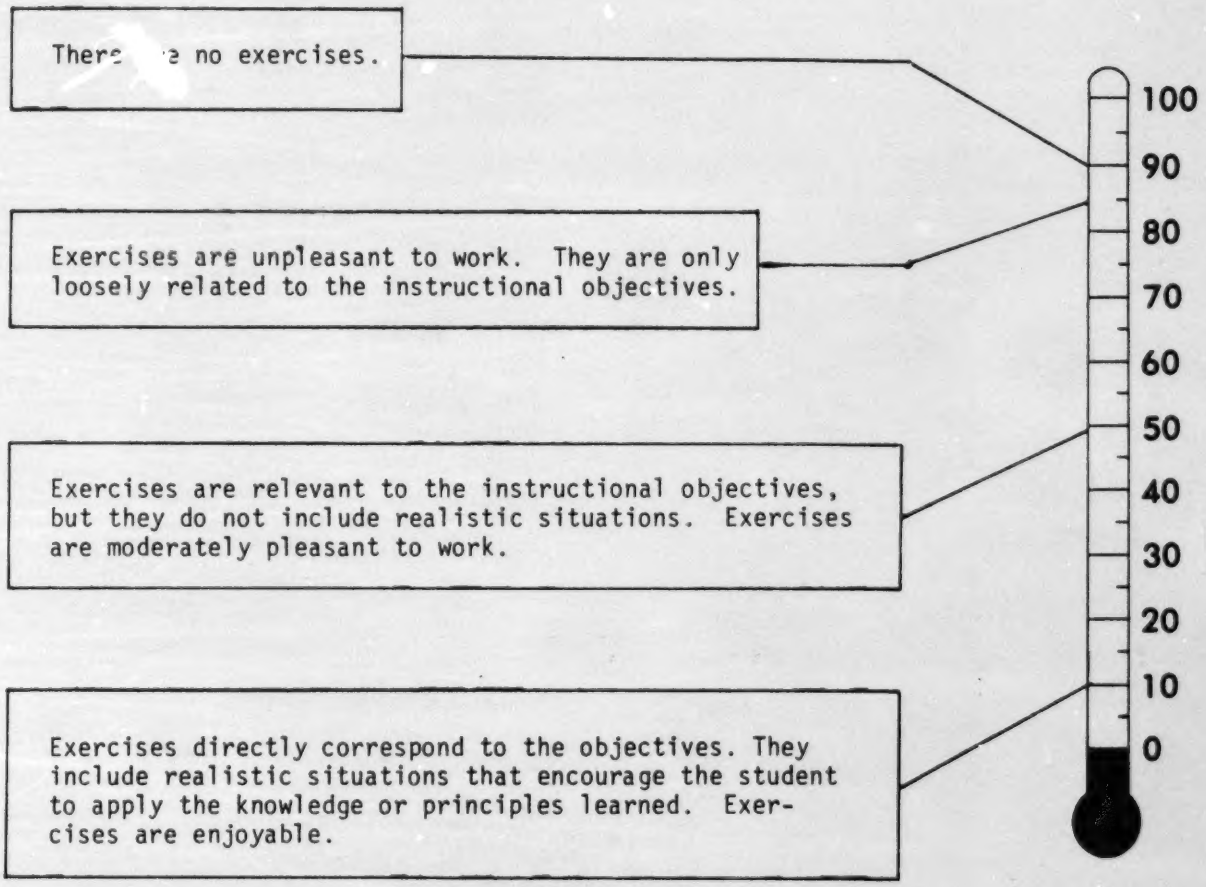
General purposes are stated such as: "This passage will help you to learn your role in hospital food service."

Some questions are provided at the beginning to help focus students' attention.

Clear objectives are stated at the beginning of the passage, such as:

1. You will be able to multiply two-digit whole numbers.
2. You will be able to check your work in multiplying whole numbers.

4. WRITING AS INSTRUCTION.
FACTOR 4B: IS STUDENT PRACTICE PROVIDED?


There are no exercises.
Exercises are unpleasant to work. They are only loosely related to the instructional objectives.
Exercises are relevant to the instructional objectives, but they do not include realistic situations. Exercises are moderately pleasant to work.
Exercises directly correspond to the objectives. They include realistic situations that encourage the student to apply the knowledge or principles learned. Exercises are enjoyable.
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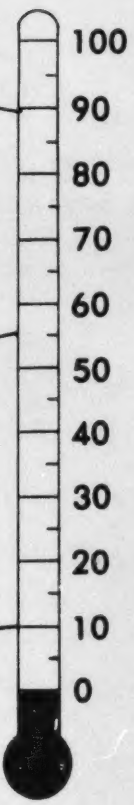
5. ORGANIZATION AND COHERENCE.
FACTOR 5A: IS THE ORGANIZATION EASY TO SEE?

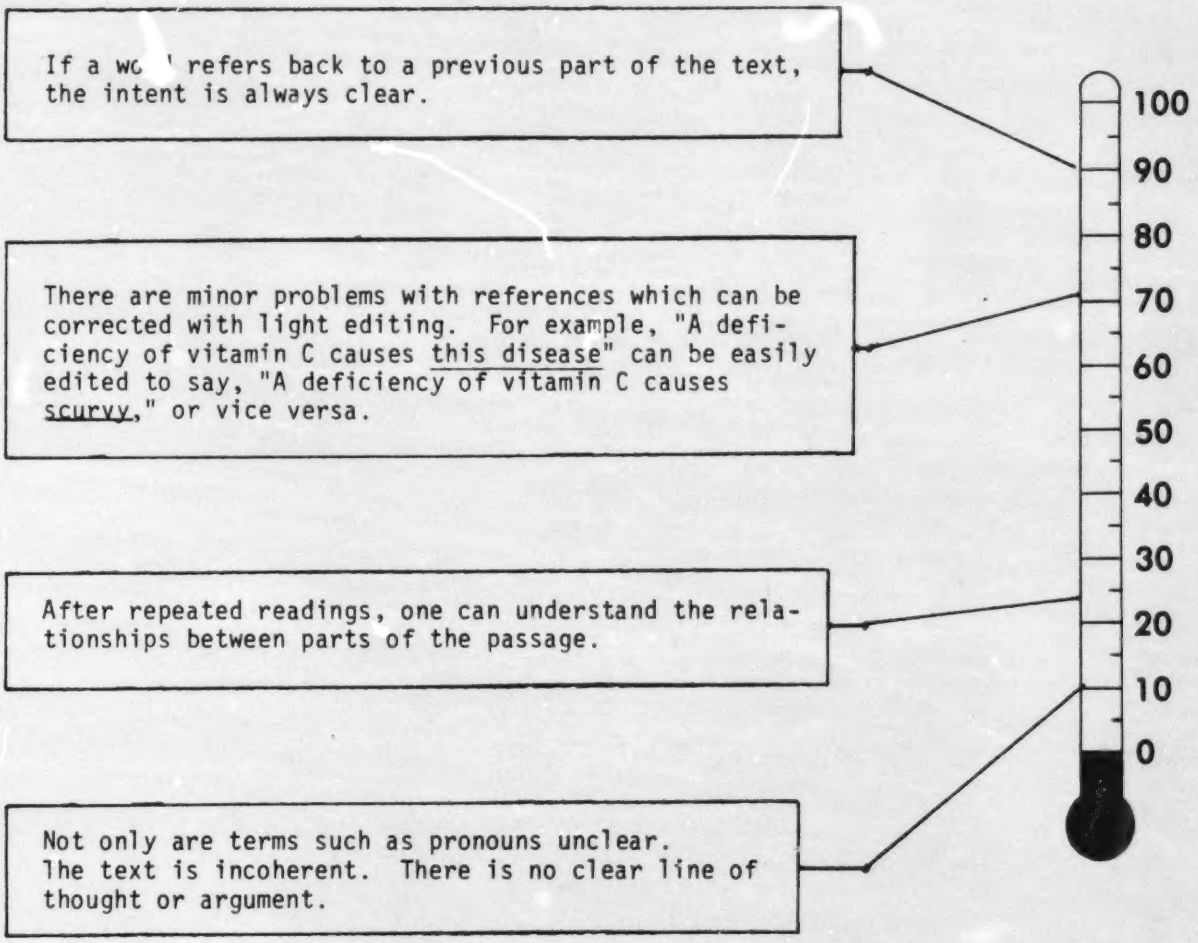
The main ideas are clearly stated. The relationships of sentences and paragraphs are easy to see. This clarity may be achieved in part by the use of devices such as flowcharts, headings, and titles. Effective use is made of transition words such as "Next," "Most importantly," and so forth.

Relationships are generally easy to see. Headings, subheadings, and titles are used to make the organization clear. However, some of the minor relationships remain unclear.

It is impossible to tell how one part of the text is related to other parts. If headings are present, they provide little useful information.



5. ORGANIZATION AND COHERENCE.
FACTOR 5B: ARE REFERENCES CLEAR?


If a word refers back to a previous part of the text, the intent is always clear.
There are minor problems with references which can be corrected with light editing. For example, "A deficiency of vitamin C causes this disease" can be easily edited to say, "A deficiency of vitamin C causes scurvy," or vice versa.
After repeated readings, one can understand the relationships between parts of the passage.
Not only are terms such as pronouns unclear. The text is incoherent. There is no clear line of thought or argument.
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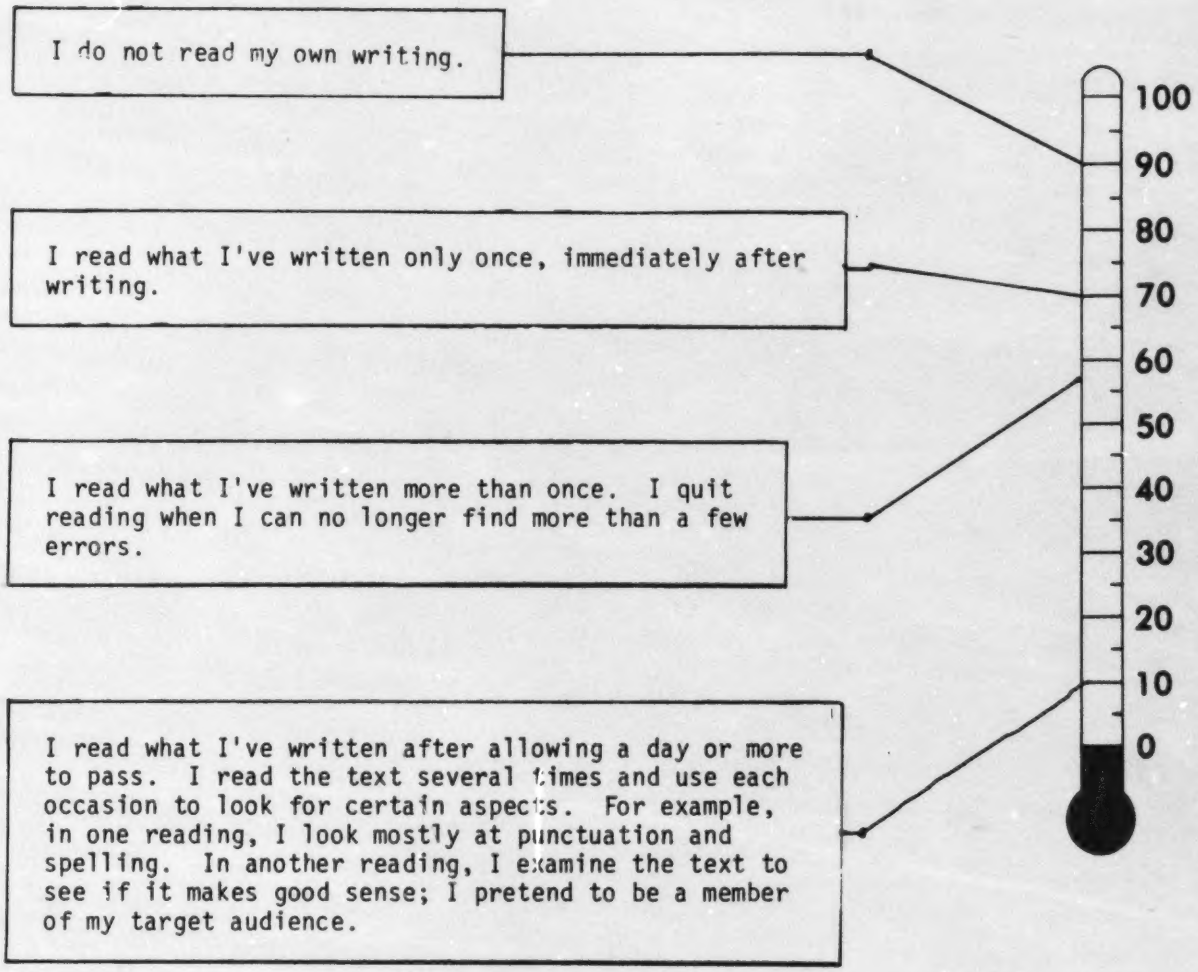
5. ORGANIZATION AND COHERENCE.
FACTOR 5C: DO YOU READ YOUR OWN WRITING?


I do not read my own writing.
I read what I've written only once, immediately after writing.
I read what I've written more than once. I quit reading when I can no longer find more than a few errors.
I read what I've written after allowing a day or more to pass. I read the text several times and use each occasion to look for certain aspects. For example, in one reading, I look mostly at punctuation and spelling. In another reading, I examine the text to see if it makes good sense; I pretend to be a member of my target audience.
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